ballast sleeve of the ballast is substantially the same as the width of a lamp sleeve of an ultraviolet lamp

57. A fluid treatment assembly, comprising:

a ultraviolet lamp adapted to be immersed in a fluid when the assembly is in use;

a ballast module for powering said ultraviolet lamp, said ballast module having a ballast electrically connected to said ultraviolet lamp for powering said ultraviolet lamp, the ballast having a resonant circuit with a resonance frequency for generating an alternating voltage source to power said ultraviolet lamp and a driver circuit with a pulse frequency for supplying the resonant circuit with pulses of electrical energy;

a frame member having a portion adapted to be immersed in the fluid when the assembly is in use, the frame member supporting said ultraviolet lamp and said ballast module; and

an electrical system for receiving electrical energy, which has a voltage and a current, and providing such to said ballast module;

wherein the resonance frequency is set in excess of 50 kHz.

58. The fluid treatment assembly of Claim 57, wherein the resonance frequency is substantially set in a first range of 50kHz to 1 MHz.

59. The fluid treatment assembly of Claim 57, wherein the resonance frequency is substantially set in a first range of 100 kHz to 150 kHz.

60. The fluid treatment assembly of Claim 57, wherein the resonance frequency is substantially set in a first range of 200 kHz to 250 kHz

61. The fluid treatment assembly of Claim 58, wherein the power supplied to said ultraviolet lamp decreases the further the pulse frequency deviates from the resonance frequency and wherein the pulse frequency is varied

substantially within a second range of 50kHz to 1 MHz to control the power supplied to said ultraviolet lamp.

62. The fluid treatment assembly of Claim 59, wherein the power supplied to said ultraviolet lamp decreases the further the pulse frequency deviates from the resonance frequency and wherein the pulse frequency is varied substantially within a second range of 150 kHz to 200 kHz to control the power supplied to said ultraviolet lamp.

63. The fluid treatment assembly of Claim 60, wherein the power supplied to said ultraviolet lamp decreases the further the pulse frequency deviates from the resonance frequency and wherein the pulse frequency is varied substantially within a second range of 150 kHz to 200 kHz to control the power supplied to said ultraviolet lamp.

64. The fluid treatment assembly of Claim 57, wherein the resonant circuit comprises of a capacitance and an inductance in series.

65. The fluid treatment assembly of Claim 57, further comprising an assembly control unit for controlling said ultraviolet lamp; wherein said ballast module further comprises a control section for controlling the ballast and interfacing with said assembly control unit.

66. The fluid treatment assembly of Claim 65, wherein the control section further comprises a monitor section for monitoring said ballast module and said ultraviolet lamp, and reporting to said assembly control unit.

67. The fluid treatment assembly of Claim 57, wherein said ballast module is removable from the fluid treatment assembly.

68. The fluid treatment assembly of Claim 57, wherein said ballast module further comprises a power factor section to substantially synchronize the

voltage and current of the electrical energy as viewed by an electrical energy monitor.

69. The fluid treatment assembly of Claim 57, wherein the resonance frequency is set at greater than 50 kHz for reduced size of components so that the width of a ballast sleeve of a ballast module is substantially the same as the width of a lamp sleeve of said ultraviolet lamp.

70. The fluid treatment assembly of Claim 57, wherein said ballast module is immersed in the fluid for cooling by the fluid.

71. A method of photochemically treating a fluid using a fluid treatment assembly, comprising

immersing an ultraviolet lamp in the fluid when the assembly is in use;

powering said ultraviolet lamp using a ballast module, said ballast module having a ballast electrically connected to said ultraviolet lamp for powering said ultraviolet lamp, the ballast having a resonant circuit with a resonance frequency for generating an alternating voltage source to power said ultraviolet lamp and a driver circuit with a pulse frequency for supplying the resonant circuit with pulses of electrical energy;

supporting said ultraviolet lamp and said ballast module in a frame member having a portion adapted to be immersed in the fluid when the assembly is in use; and

receiving electrical energy, which has a voltage and a current, and providing such to said ballast module;

wherein the resonance frequency is set in excess of 50 kHz.

72. The method of Claim 71, wherein the resonance frequency is substantially set in a first range of 50kHz to 1 MHz.

73. The method of Claim 71, wherein the resonance frequency is substantially set in a first range of 100 kHz to 150 kHz.